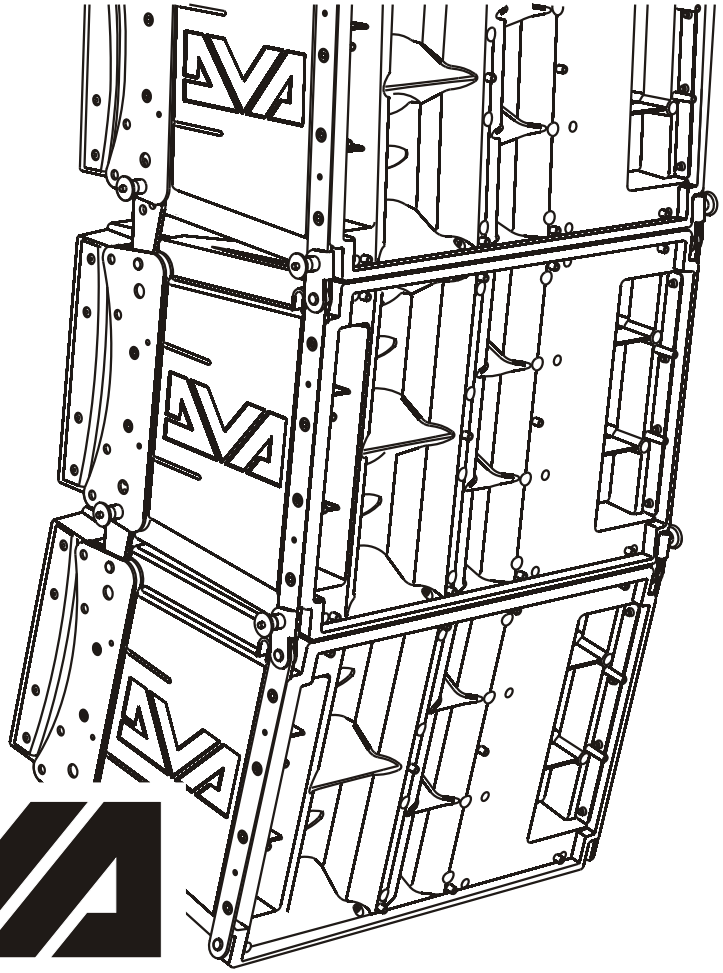


Digital Vertical Array

T12

MANUALE d'USO - Sezione 1
USER MANUAL - Section 1
BEDIENUNGSANLEITUNG - Abschnitt 1
CARACTERISTIQUES TECHNIQUES - Section 1

COD. 420120184 Rev 3.0

Made in Italy

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DATI TECNICI

Sistema	Attivo 3-Amps
Tipologia amplificatore	Digitale - Classe D Tecnologia DIGIPRO G2
Potenza RMS	1410W
Alti (HF) RMS	350W
Medi (MF) RMS	350W
Bassi (LF) RMS	710W
Potenza musicale	2820W
Risposta in frequenza (-6dB)	60-19.000Hz
Crossover MF-HF (Medi-Alti)	1900Hz 24dB/Oct
Crossover LF-MF (Bassi -Medi)	420Hz 24dB/Oct
Pressione sonora (SPL)	136dB max
Componenti	1 woofer 12" - VC 3" - Neodimio 2 midrange 6,5" - VC 2" - Neodimio 3 compression driver 1" - VC 1.5" - Neodimio
Sensibilità ingresso nominale	0dBu
Impedenza ingresso	
Bilanciato	20Kohm
Sbilanciato	10Kohm
Alimentazione	Full-range con PFC e SMPS 100-240V~ 50-60Hz
Corrente di accensione	14,9A
Dimensioni (LxHxP)	580x386x430mm
Peso	29,9Kg

PROCESSORE DSP

DSP	Analog Device 56 bits
Conversione audio	24 bit / 96kHz S/N=116dB
Controllo volume	Digitale
Equalizzazione	9 preset EQU

MECCANICA

Materiale box	Polipropilene (PP)
Rinforzi interni box	Alluminio
Materiale staffe appendibilità	Acciaio
Angolazioni staffe	0° - 1,5° - 3° - 4,5° - 6° - 8° - 10°
Forma del diffusore	Trapeziodale - angolazione 10°
Maniglia	1 x lato
Rete frontale	Lamiera forata 1.2mm con foam interno.

CLASSIFICAZIONE EMI

In accordo alle normative EN 55103, l'apparato è progettato e idoneo all'utilizzo in ambienti Elettromagnetici E3 o inferiori (E2, E1).

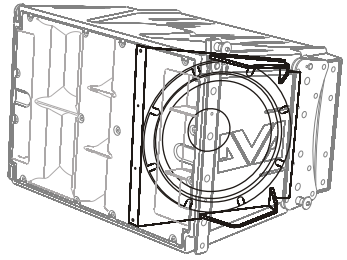
DESCRIPTION

The DVA T12 is equipped with three class D amplifiers of DIGIPRO® G2 series, high efficiency, which delivers high output power in a compact size and low weight. Thanks to its high efficiency the cooling of the amplifier module is obtained statically, thus avoiding the use of a fan.

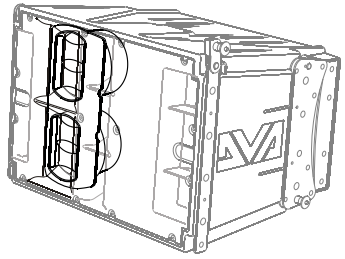
The power supply circuits of the DIGIPRO® G2 amplifier has been conceived to work in full-range mode; thanks to the SMPS (Switched-Mode Power Supplies) technology with PFC (Power Factor Correction) the operation with supply voltages between 100 Vac and 240Vac is guaranteed by ensuring the same sound performances even with floating and non-stabilized power supply systems.

The amplifier module is able to deliver 710W (RMS) for the bass section, 350W (RMS) for the mid-section and 350W (RMS) for the treble section.

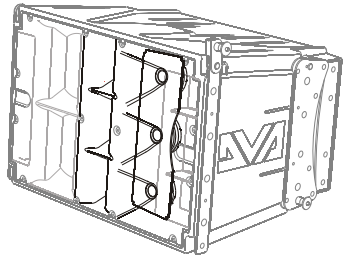
The bass section controls a 12" neodymium woofer (3" voice coil) in a band-pass configuration enclosed inclined inside the box. This configuration guarantees a high SPL and the obtainment of frequencies of up to 60Hz.



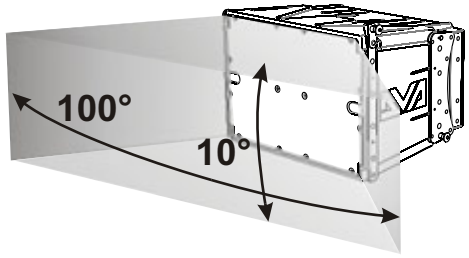
The mid-section controls two 6.5" neodymium midranges (2" voice coil), enclosed in their own acoustic chamber and horn loaded with a power factor corrector. The plug phases located in front of the cones prevent the vertical phases from overlapping, creating in fact a local array with 6 output slot that increases directivity. The horn design was specifically created to couple it correctly with the DVA T4 modules.



The treble section controls three 1" neodymium drivers (1.5" voice coil) positioned vertically on an aluminum support and spaced to optimize the vertical cover. The horn design was specifically created to couple it correctly with the DVA T4 modules.



This specific design has made it possible to obtain a constant and precise 100° coverage in a horizontal direction and 10° coverage in a vertical director for each diffuser.



DVA Network

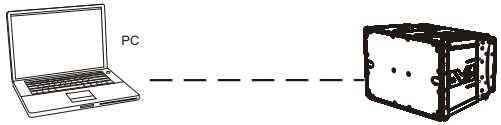
DVA T12 is equipped with proprietary network interface, called RDNET, for PC interface through a device (RDNET control).
For this purpose, a proprietary communication protocol has been developed for receiving and sending data; this connection permits real-time monitoring of the diffuser parameters, such as output power, amplifier temperature, limiter status, etc...
It is also possible to select various equalizations or create new ones, set the desired volume levels using the specific plug-in.

It is recommended to download DVA Network free software directly from dB Technologies (www.dbtechnologies.com) in the special section «Software & Controller»

DVA USB Manager

The firmware of the amplifier module can be updated via the USB port.
To make this update possible and simple, a dedicated program has been developed.

It is recommended to download DVA USB Manager free software directly from dB Technologies (www.dbtechnologies.com) in the special section «Software & Controller»



DVA Composer Acoustical Simulation and aiming for DVA Systems

DVA Composer is a 2D software for aiming and simulating acoustical response of all line arrays and Subwoofers from DVA Series.
The software allows you to set up a stereo system composed by tops and subs, and simulates separately the acoustical response of both
DVA Composer also gives to the user all the information about phase alignment between flown systems and ground stacked subwoofers, as well as it suggests an optimized aiming of the line arrays modules and their suggested EQ presets, in order to guarantee maximum performances even for non-expert customers.

It is recommended to download DVA_Composer free software directly from dB Technologies (www.dbtechnologies.com) in the special section «Software & Controller»

CONTROLS AND FUNCTIONS

"Balanced Audio" section

1) " INPUT" INPUT CONNECTOR
Balanced input at line level. It is able to accept "XLR" sockets.

2) "LINK" OUTPUT CONNECTOR
The "XLR" connector connected in parallel with input (1) can be used to send the input audio signal to another amplified speaker.

"Status" section

3) "LIMITER" INDICATOR LIGHT
This indicator comes on red to indicate that the internal limiter circuit has tripped.
This prevents amplifier distortion and protects the speakers against overloads.

⚠ Always avoid operating conditions where the system works for long periods of time with LED flashes or it is always ON

4) "SIGNAL" INDICATOR LIGHT
This indicator comes on green to indicate the presence of an input signal to a level higher than-20dBu.

5) "MUTE/PROT" INDICATOR LIGHT
This yellow indicator indicates amplifier status. In normal operating conditions, the LED is off; if it flashes or is always on, refer to the diagnostics table to check amplifier status.

6) "READY" INDICATOR LIGHT
This indicator comes on green to indicate that the main power voltage is correct. In normal operating conditions, the LED is on; if it flashes or is off, refer to the diagnostics table to check amplifier status.

"Input control " section

7) "INPUT SENS" INPUT SENSITIVITY CONTROL
This control regulates the sensitivity of the signal amplifier input.
This control does not affect the "BALANCED LINK/OUT" output level

"RDNET " section

8) INPUT CONNECTOR "DATA INPUT"
RJ45 connector 'data input.

9) OUTPUT CONNECTOR "DATA INPUT"
RJ45 connector 'data output for cascading connections.

10) "LINK" INDICATION LIGHT
This green indicator turns on only when the amplifier has recognized and is connected with the main RDNET unit via the computer.

11) "ACTIVE" INDICATOR LIGHT
This yellow indicator flashes when there is an active data transmission between RDNET and the amplifier module.

"DSP configuration" section

12) "Remote Preset Active" INDICATION LIGHT

This yellow indicator indicates the exclusion of the Volume control and the "DSP Preset" rotary switch (13) when the amplifier is remotely controlled by a computer via RDNET.
The indicator flashes slowly if the rotary switch is set to 9 and a previously saved user equalization has been stored.

13) "DSP Preset" 10-position ROTARY SWITCH

This 10-position rotary switch makes it possible to select the nine preset equalization curves (selector 0-8) or to select the equalization previously saved by the user via RDNET (selector 9).
If this option is not used, curve 9 will be equal to curve 0
Refer to the table for the correspondence of the equalization curve.

14) "Service Data USB" Connector

Via this USB connector, it is possible to update the firmware of the DVA T12 amplifier module using the computer and a dedicated program.

15) "Optional device"Connector

This 8-pole connector is used for future optional connections.

16) "MAINS INPUT" POWER SOCKET

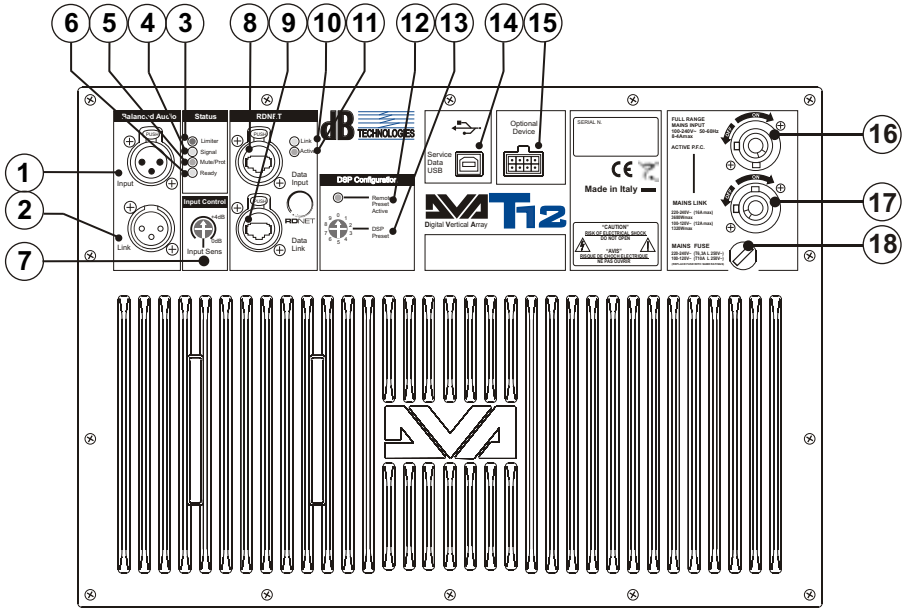
For connecting the power cable.
The connector used for mains connection is a POWER CON® (blue)

17) "MAINS OUTPUT LINK" RELAUNCH POWER SOCKET

For relaunching the mains power. The output is connected in parallel with input (16) and can be used to power another amplified speaker.
The connector uses a POWER CON® (grey)

18) "MAINS FUSE" FUSE CARRIER

Mains fuse housing.



CHARACTERISTICS AND PROTECTION

Front Grille

The speakers's components in the box are protected by 1.2mm metal steel grille covered by foam on backside.

Cooling

Thermal control is managed by the main microprocessor that interacts with the local microprocessors (amplifiers and power supply) and communicates the data to the DSP for any corrections.
If the amplifier module heats up excessively, the volume is gradually reduced step wise to 0.1dB until the module is thermally stabilised.
The volume is automatically restored when the normal operating temperature is reached.

Power on

The diffusor is powered up normally by an initialization process during which the module is powered by the auxiliary power supply.
When all of the amplifier peripherals are correctly detected, the main power supply is activated.
The technology (RANDOM POWER ON) introduces a random and differentiated delay for each module prior to the power on of the main PSU (Power Supply Unit).
This prevents the breakaway starting currents of the various modules from accumulating, overloading the AC power supply line.
At the end of the power on procedure, only the green "READY" LED will remain on fixed on the amplifier module.

Failure indications and safeties

The microprocessor is able to signal three different kinds of failure by flashing the "LIMTER" red LED on the amplifier panel before the lighting up of the "READY" green LED. The three types of failure are:

1) **WARNING:** a non severe error or auto-ripristinate malfunction is detected and the performance of the speaker is not limited
2) **LIMITATION:** an error is detected and diffuser performance is limited. The sound level is reduced or one or more amplifiers are disabled.
This state partially influences the correct functioning of the diffuser.
If the problem persists the next time the module is turned on, contact the support centre for assistance.
3) **FAILURE:** a severe malfunction is detected. The speaker switches to "mute".

If the case of a malfunction, before contacting the support centre, try to turn the module off and on to check if the problem still exists.

Connecting to the mains supply

Each active speaker features its own power cable. Connection is done by a Neutrik POWER CON® (blue) model which permits easy and fast connection to the speaker as well as being an excellent locking system.

The same connector serves as a switch to turn ON and OFF the active loudspeaker by turning the connector to the left (OFF) or right (ON).

The active speaker must be connected to a power supply able to deliver the maximum required power.

Main power supply linking

On the rear of the speaker, a Neutrik POWER CON® connector (grey) offers linking the mains power supply.

This socket links the power supply to another speaker, thereby reducing the direct connections to the mains. Maximum amplifier input power is shown on the amplifier panel.
The maximum number of speakers connected together varies of max input power and of the maximum allowed current of the first power socket.

DIAGNOSTICS TABLE

MODULE STATUS	LED «READY»	LED «MUTE/PROT»	LED «SIGNAL»	LED «LIMIT»	MODULE FUNCTIONS
Power ON	OFF	ON for 5 sec.	OFF	OFF	Audio MUTED Initialization of the amplifier module
Normal use	ON	OFF	Normal operation	Normal operation	Audio ACTIVE Module initialization complete and correct
Partial fault	ON	Cyclic flashing (3 or more quick flashes)	Normal operation	Normal operation	Audio ACTIVE The module has detected a partial anomaly and remains active with limited functions
Total fault	OFF	ON	OFF	Cyclic flashing	Audio MUTED The module has detected a serious anomaly and is in protected mode
Amplifier temperature management:					
First thermal threshold	ON	Cyclic flashing (1 slow flashes)	Normal operation	Normal operation	Audio ACTIVE The amplifier module begins a gradual decrease of the volume in 0.1dBm steps to compensate 'temperature increase up to a maximum reduction of 3dBm.
Second thermal threshold	ON	Cyclic flashing (2 quick flashes)	Normal operation	Normal operation	Audio ACTIVE The amplifier module reduces the volume further 3dBm always in 0.1dBm steps up to a maximum reduction of 6dBm respect original volume.

NB The temperatures shown on the plug-in RDnet software refer to the internal temperature of the power semiconductors. These temperatures are not displayed the temperatures of accessible parts user

MODULE STATUS	LED «Remote Preset Active»	LED «LINK»	LED «ACTIVE»	MODULE FUNCTIONS
RDNET not active	OFF	OFF	OFF	The module is functioning normally. The volume (INPUT SENS) and the rotary switch (DSP Preset) are active
RDNET connect	ON	ON	Cyclic flashing	The amplifier module is remotely controlled by RDNET. The volume (INPUT SENS) and the rotary switch (DSP Preset) are bypassed
Equalization «USER Eq» (rotary switch «DSP Preset» set to 9)	Cyclic flashing	OFF	OFF	The module functions normally. The equalization saved by means of RDNET is being used.

TECHNICAL SPECIFICATION

System	Active 3-Amps
Type of amplifier	Digital - Class D DIGIPRO G2 technology
RMS power	1410W
High (HF) RMS	350W
Mide (MF) RMS	350W
Low (LF) RMS	710W
Musical power	2820W
Frequency response (-6dB)	60-19.000Hz
Crossover MF-HF (Mid-High)	1900Hz 24dB/Oct
Crossover LF-MF (Low-Mid)	420Hz 24dB/Oct
Sound pressure (SPL)	136dB max
Component parts	1 woofer 12" - VC 3" - Neodymium 2 midrange 6,5" - VC 2" - Neodymium 3 compression driver 1" - VC 1.5" - Neodymium
Input sensitivity nominal	0dBu
Input impendence	20Kohm
Balanced	10Kohm
Unbalanced	
Power supply	Full-range with PFC and SMPS 100-240V~ 50-60Hz
Inrush current	14,9A
Dimension (WxHxD)	580x386x430mm
Weight	29,9Kg
DSP PROCESSOR	Analog Device 56 bits 24 bit / 96kHz S/N=116dB
DSP	Digital
Audio conversion	9 preset EQU
Volume control	
Equalization	
MECHANICAL PARTS	
Box material	Polipropilene (PP)
Box internal reinforcement	Aluminium
Flying support material	Steel
Stirrup angle	0° - 1,5° - 3° - 4,5° - 6° - 8° - 10°
Housing shape	Trapezoidal - angle 10°
Handle	1 x side

EMI CLASSIFICATION

According to the standards EN 55103 this equipment is designed and suitable to operate in E3 (or lower E2, E1) Electromagnetic environments.

Modifiche strutturali alla supporto flybar DRK10

Non possono essere eseguite modifiche senza il consenso del produttore.

Accessori originali dBTechnologies

Utilizzare solo parti originali dBTechnologies.
L'ente certificatore TÜV non ha omologato nessun altro accessorio per questo uso!
Installare sempre le parti in conformità con queste istruzioni di installazione!
Compilare e archiviare tutti i documenti del sistema DVA in un posto sicuro!

Attenzione
Nel caso in cui le suddette norme di sicurezza e il calcolo dei peso totale non siano rispettate la dB Technologies non è responsabile di eventuali danni a cose e persone!

Note

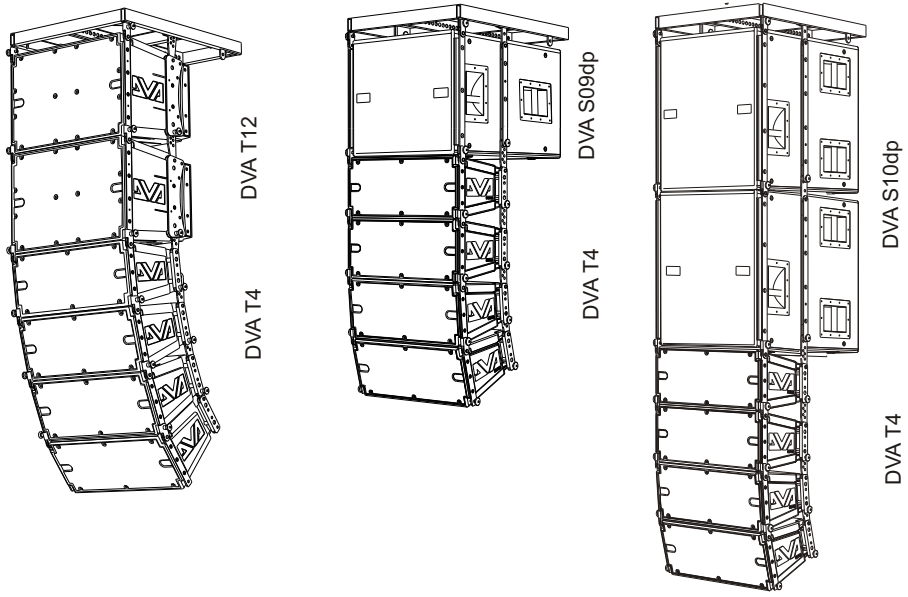
Durante le installazioni accertarsi che nella struttura portante del sistema vengano inclusi nel calcolo dei pesi totali anche il peso del flybar DRK 10, delle catene dei sollevatori, dei motori, dei cavi e ulteriori pesi aggiuntivi.

Inizio e funzionamento

§ 39, VBG 9a sull'assicurazione obbligatoria da parte datori di lavoro Tedeschi per la prevenzione degli incidenti richiede che l'equipaggiamento del carico-portante debba essere ispezionato da personale qualificato ed i possibili difetti debbano essere eliminati prima della consegna al utente finale.

§ 41 VBG 9a richiede che l'equipaggiamento del carico-portante debba essere soggetto a una manutenzione non ordinaria successivamente a danni, riparazioni e altri incidenti che possono avere effetto sulla capacità del carico-portante.

Attenzione
Le normative sulla sicurezza possono essere diverse in funzione del paese di destinazione. Verificare le normative valide in accordo con il regolamenti sulle sicurezze del paese!



INSTALLATION

DRK 10

DVA system has obtained the TÜV certification for suspension of DVA T4, DVA T12, DVA S10dp and DVA S09dp speakers through flybar stirrup DRK 10.

The report certifies that the maximum weight applying to DRK 10 flybar is 250Kg.

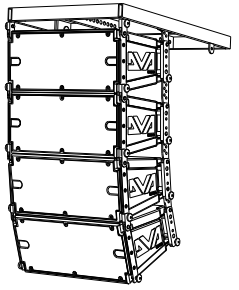
DVA T4 configuration

The DRK 10 flybar attests that the maximum number of DVA T4 is 16.

Refer to table 1 to determine the total weight borne by flybar according to the different DVA T4 configurations.

Quantity	Weight [kg]	[lbs.]
1	15	33
2	30	66
3	45	99
4	60	132
5	75	165
6	90	198
7	105	231
8	120	264
9	135	297
10	150	330
11	165	363
12	180	396
13	195	429
14	210	462
15	225	495
16	240	528

Table 1



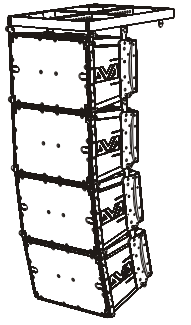
DVA T12 configuration

The DRK 10 flybar attests that the maximum number of DVA T12 is 4.

Refer to table 2 to determine the total weight borne by flybar according to the different DVA T12 configurations.

Quantity	Weight [kg]	[lbs.]
1	30	66
2	60	132
3	90	198
4	120	264
5	150	330
6	180	396
7	210	462
8	240	528

Table 2



Mixed configuration with DVA T4 and DVA t12

The modular structure of DVA system permits mixed suspension configuration between DVA T4 and DVA T12. It is necessary to consider that one DVA T12 hanging corresponds, in weight terms, to two DVA T4 speakers.

For this reason it is necessary to calculate the total weight according to the different configurations.

Examples:

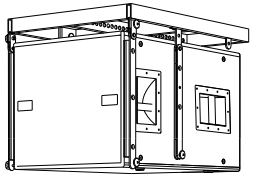
	Quantity	Weight x qty	Configuration weight
DVA T12	3	90Kg	**150Kg**
DVA T4	4	60Kg	

DVA S09dp configuration

The DRK 10 flybar attests that the maximum number of DVA S09dp is 6.
Refer to table 3 to determine the total weight borne by flybar according to the different DVA S09dp configurations.

Quantity	Weight [kg]	Weight [lbs.]
1	37	82
2	74	163
3	111	245
4	148	326
5	185	407
6	222	444

Table 3



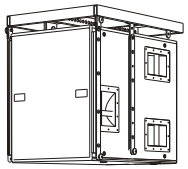
DVA S10dp configuration

The DRK 10 flybar attests that the maximum number of DVA S10dp with Neodymium woofer is 4 and DVA S10dp with Ceramic woofer is 5.
Refer to table 2 to determine the total weight borne by flybar according to the different DVA S10dp configurations.

Quantity DVA S10dp (Neodymium woofer)	Weight [kg]	[lbs]
1	48	106
2	96	212
3	144	317
4	192	423
5	240	528

Quantità DVA S10dp (Ceramic woofer)	Weight [kg]	[lbs]
1	54	119
2	108	238
3	162	357
4	216	476

Table 4



Mixed configuration

The modular structure of DVA system permits mixed suspension configuration between speakers.
For this reason it is necessary to calculate the total weight according to the different configurations.
Examples:

	Quantity	Weight x qty	Configuration weight
DVA T4 DVA S09dp	8 2	120Kg 74Kg	**194Kg**

	Quantity	Weight x qty	Configuration weight
DVA T12 DVA S09dp	4 1	120Kg 37Kg	**157Kg**

	Quantity	Weight x qty	Configuration weight
DVA T4 DVA S10dp(Neodimium woofer)	8 2	120Kg 96Kg	**216Kg**

	Quantity	Weight x qty	Configuration weight
DVA T12 DVA S10dp(Neodimium woofer)	5 2	150Kg 96Kg	**246Kg**

Structural modification of DRK 10 flybar

No structural modifications may be made without the manufacturer's consent.
Use only dB Technologies original parts

Original parts dB Technologies

Use only dB Technologies .original parts
The TÜV authorizing body has not certificated any other parts for use!
Always install parts in accordance with these installation instruction!
Compile and store all DVA system documents in a safe place!

Warning
If the security norms and total weight calculations are not observed, dB Technologies is not responsible for any possible damage to people and things.

Note

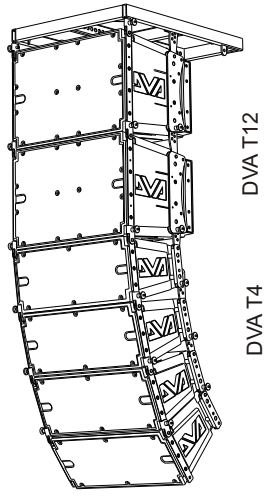
During installation ensure that carrying structure of the system has added in the total weight also the DRK 10 flybar weight, chain hoists, motors, cables and further weights.

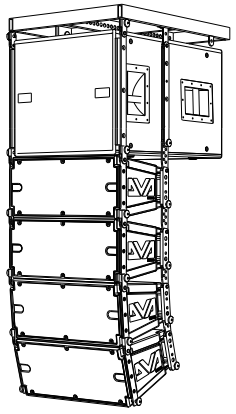
Initiation and Operation

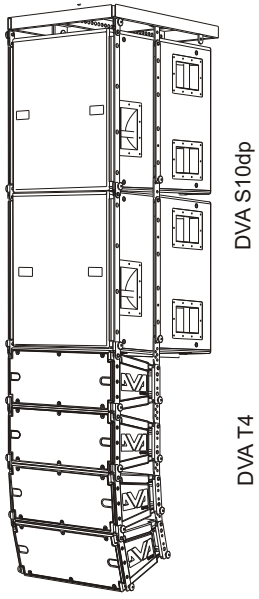
§ 39, VBG 9a of the German employers' liability insurance association's accident prevention regulations requires that load-carrying equipment be inspected by a qualified expert and possible defects be eliminated prior to initial commissioning by the recipient.

§ 41 VBG 9a requires that load-carrying equipment be subjected to a non-routine inspection following damage, repair work and other incidents that can affect load-carrying capacity.

Warning
The safety regulations might be different in other countries. Please check with your national safety authority the valid regulations!



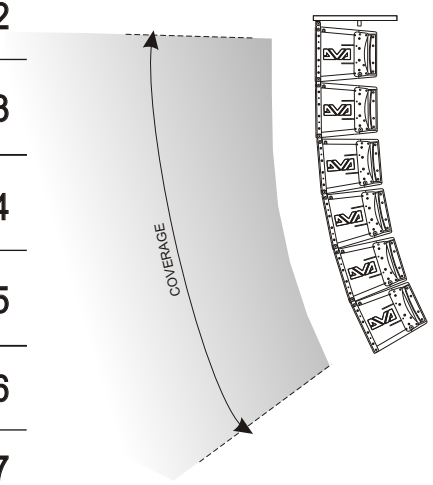


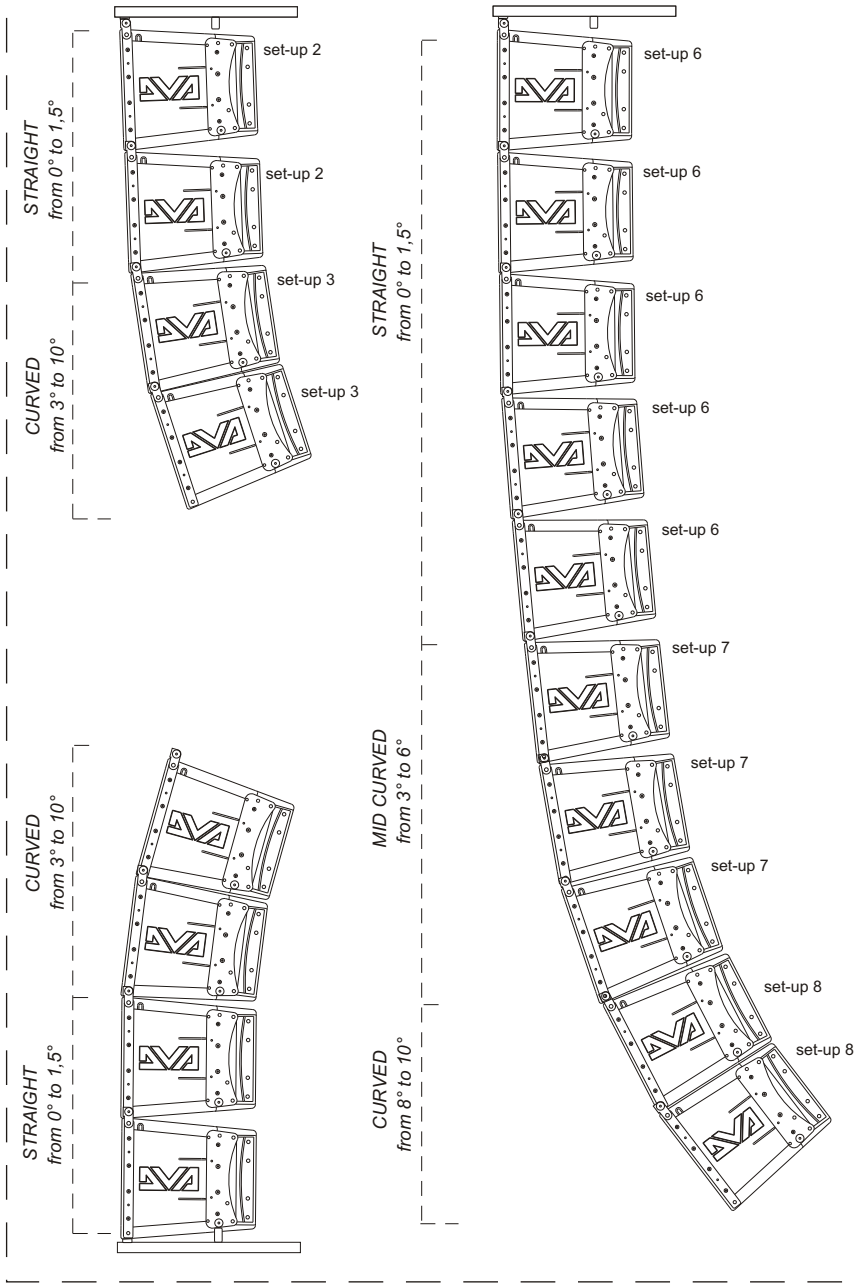


DVA T12 QUICK CONFIGURATIONS

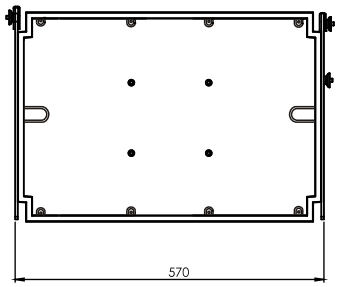
RESPONSE CURVE	NAME	EQU SET
	Flat Response	0
	Front Field	1

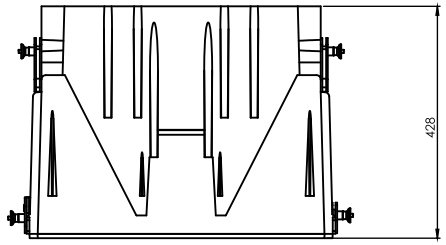
NUMBER OF BOXES	SHAPE	ANGLES	EQU SET
FROM 4 TO 5	STRAIGHT	from 0° to 1,5°	2
	CURVED	from 3° to 10°	3
FROM 6 TO 8	STRAIGHT	from 0° to 1,5°	4
	CURVED	from 3° to 10°	5
FROM 9 TO 12	STRAIGHT	from 0° to 1,5°	6
	MID CURVED	from 3° to 6°	7
	CURVED	from 8° to 10°	8

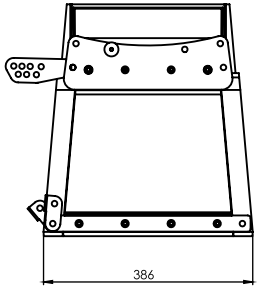


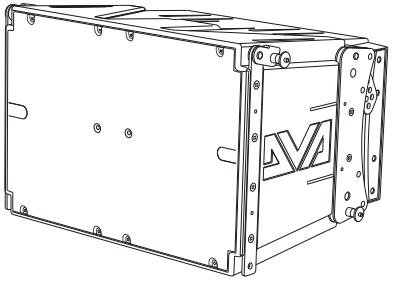


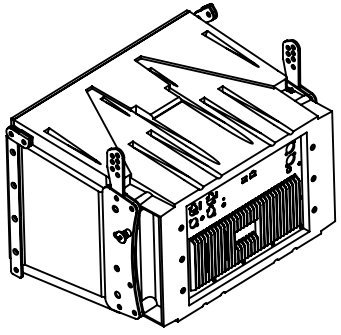
DIMENSIONI / DIMENSIONS
ABMESSUNGEN / DIMENSIONS



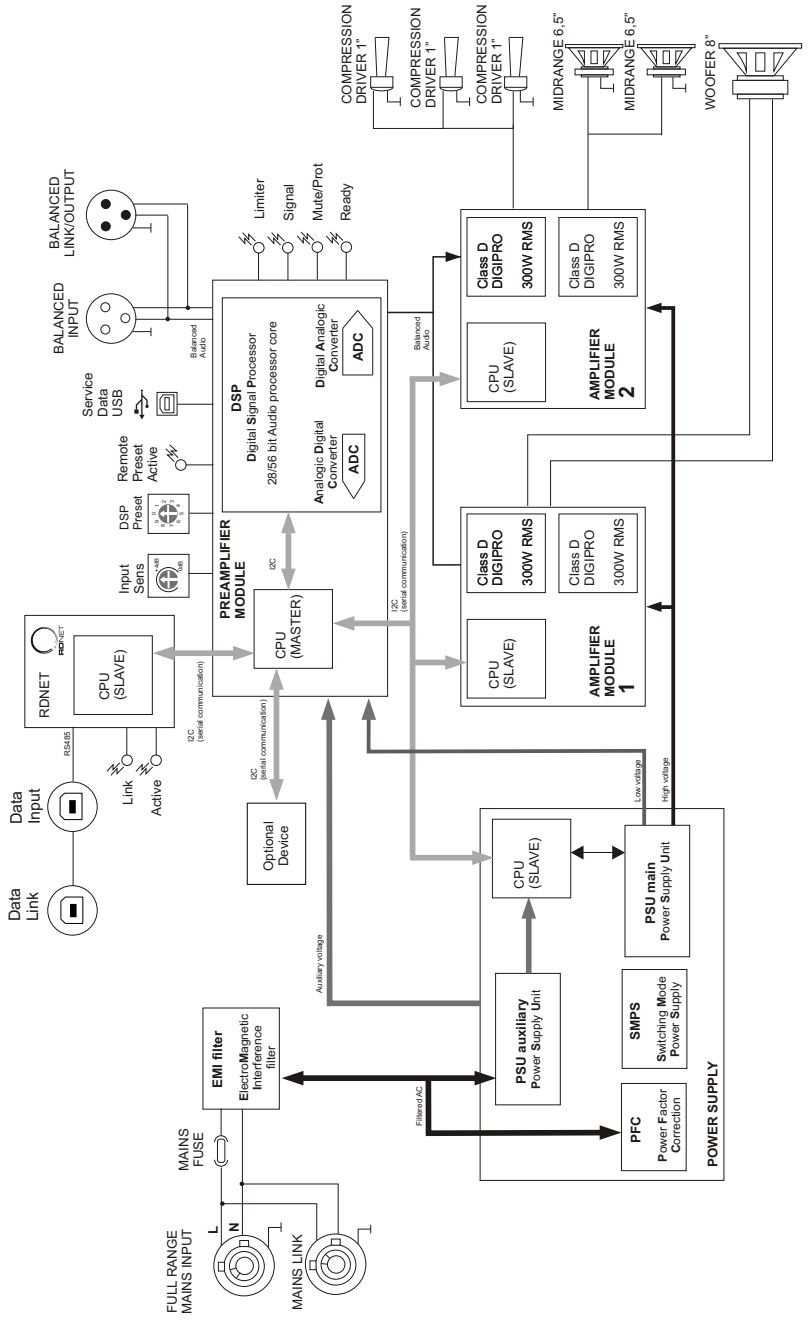




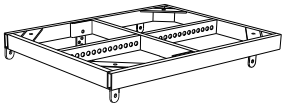




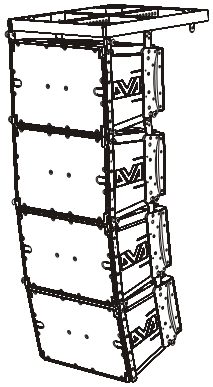
SCHEMA A BLOCCHI - BLOCK DIAGRAM
BLOCKSCHALTBILD - SCHEMAS FONCTIONNELS



DRK 10 accessorio
Accessory DRK 10

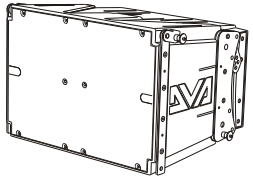


Appeso
Hanging on

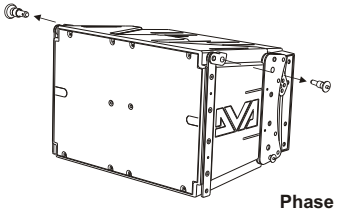


Appeso
Hanging on

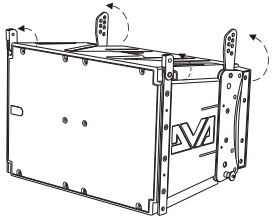
INSTALLAZIONE INSTALLATION
INSTALLATIONEN INSTALLATIONS



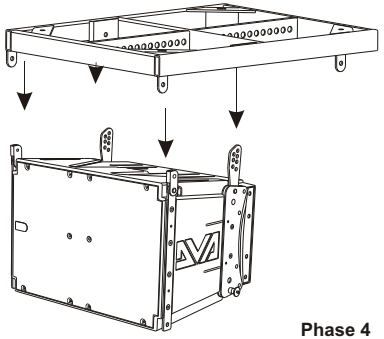
Phase 1



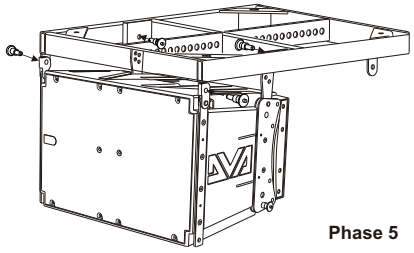
Phase 2



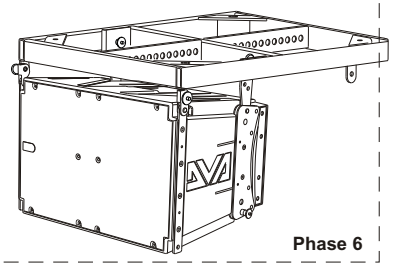
Phase 3



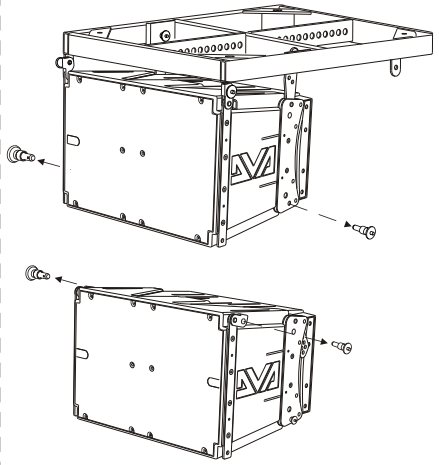
Phase 4



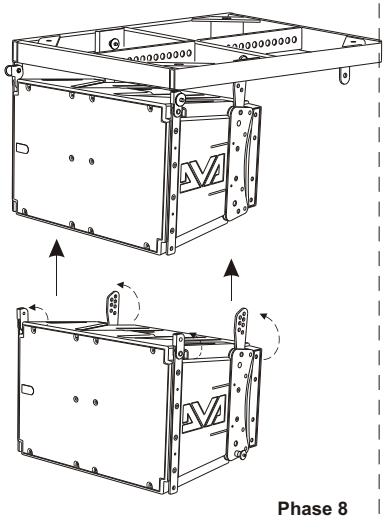
Phase 5



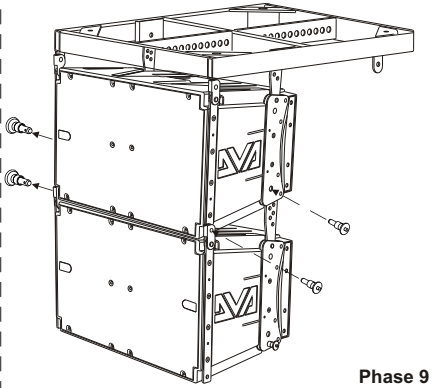
Phase 6



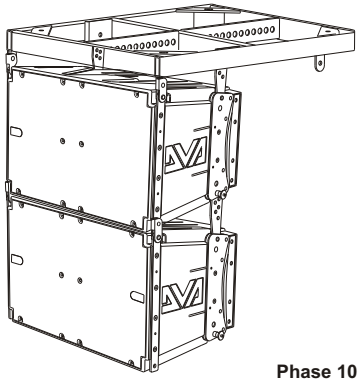
Phase 7



Phase 8

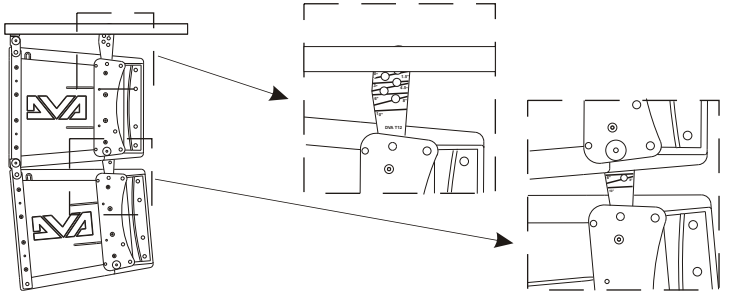


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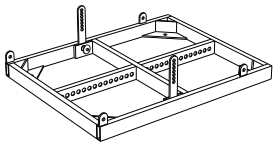


Phase 10

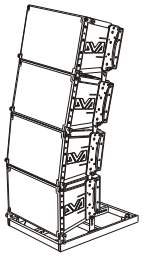
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Accessory DRK 10

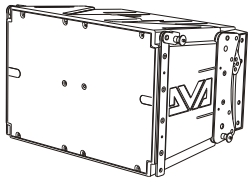


Appeso
Hanging on

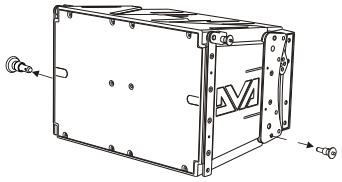


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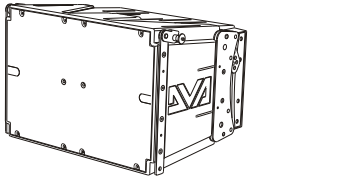
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INSTALLATIONEN INSTALLATIONS

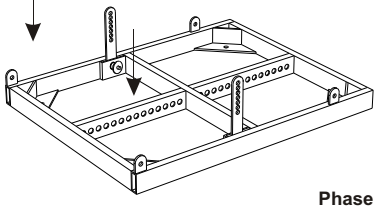


Phase 1

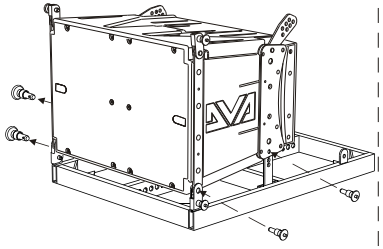


Phase 2

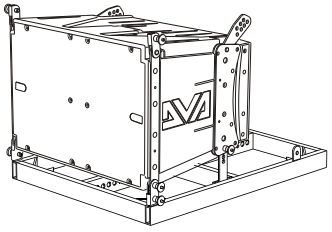




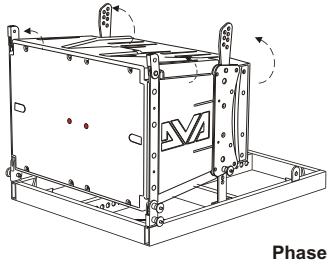
Phase 3



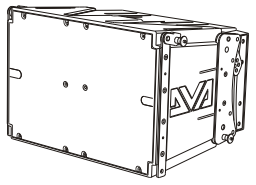
Phase 4

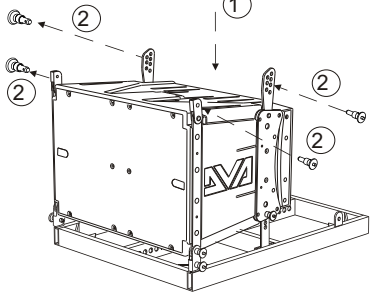


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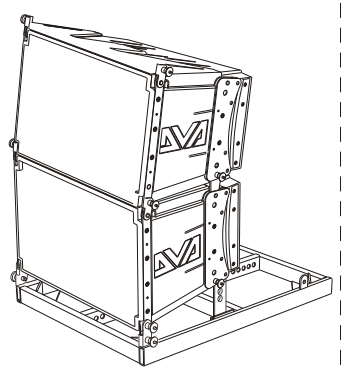


Phase 6



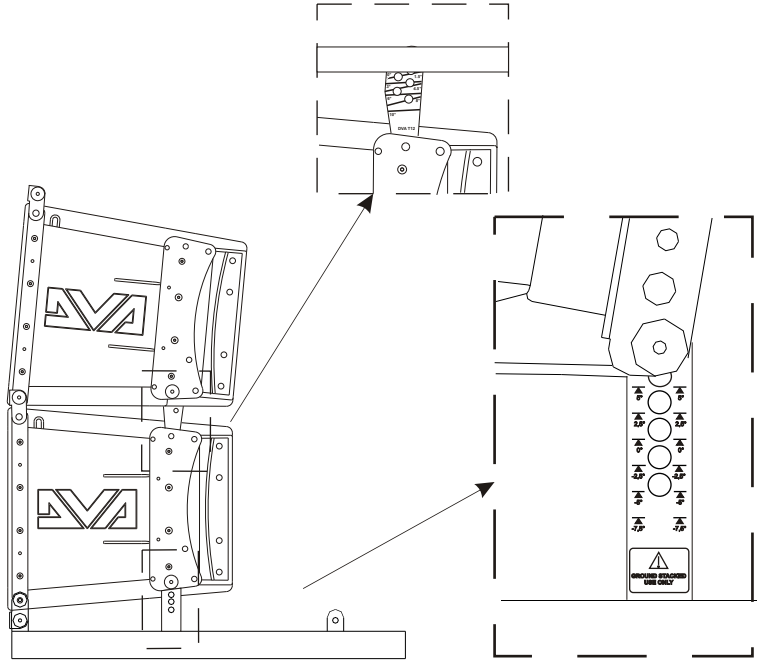


Phase 5

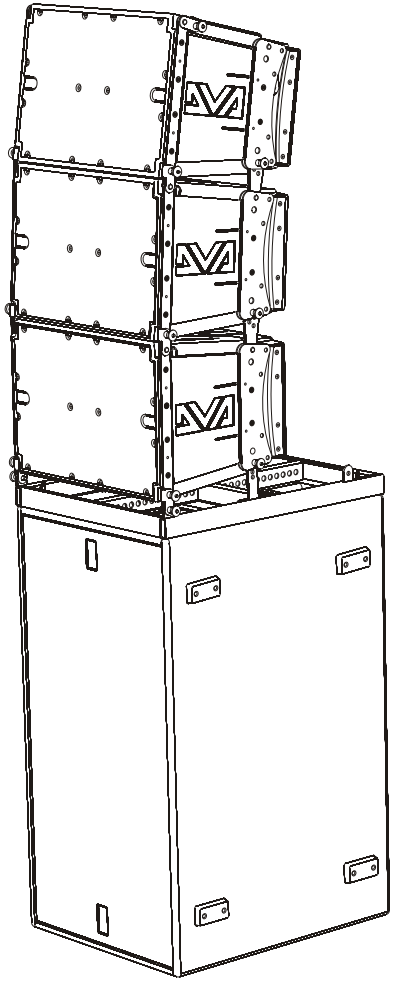


Phase 6

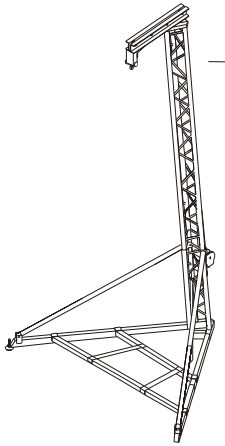
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NEIGUNG INCLINAISON

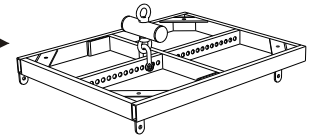


DVA T12 + DVA S30
(DRK-10 support)



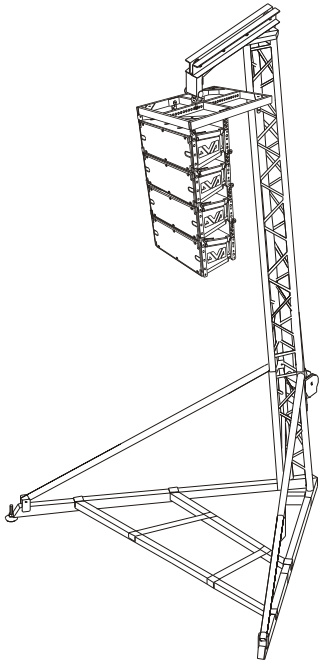
Utilizzo in appoggio verticale (DVA T4 montaggio “Ground stacking”)
Supported use (DVA T4 ““Ground stacking” assembling)





Sollevatore per diffusori - opzione DRL 45
Lift for speakers - DRL 45 option

Nota:
Utilizzare il sollevatore solo con l’accessorio DRK 10 (flybar)
Note:
To use the lift of speaker only with DRK 10 accessory (flybar)



ISTRUZIONI DI SICUREZZA PER ACCESSORI / SAFETY INSTRUCTIONS FOR ACCESSORIES
ZUBEHÖR SICHERHEITSHINWEISE / INSTRUCTIONS DE SÉCURITÉ POUR LES ACCESSOIRES

Contattare dB Technologies per gli accessori da utilizzare a corredo.
Si declina ogni responsabilità da un utilizzo inappropriato degli accessori o di dispositivi aggiuntivi non idonei allo scopo.

Contact dB Technologies for accessories to be used with speakers.
Will not accept any responsibilty when inappropriate accessories or not suitable additional devices are used.

Kontaktieren sie dBTechnologies für passendes Lautsprecherzubehör.
Falls unpassendes Zubehör verwendet wird, wird jegliche Haftung ausgeschlossen.

Contact dBTechnologies pour les accessoires à utiliser avec la machine.
N'accepterons pas toutes les responsabilités lorsque des accessoires inappropriés ou ne conviennent pas à des dispositifs supplémentaires sont utilisés.